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Test Report of Cement Concrete Cubes

IS: 516-1959 (Method of tests for strength of Concrete C1.5) — **Date: 08/06/2020**

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 7 Days Compressive Strength
Date of Test	08/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.62	460	20.4	20.45
2	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.4	457.77	20.3	
3	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.74	462.56	20.6	

Remarks :

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Test Report of Cement Concrete Cubes

IS: 516-1959 (Method of tests for strength of Concrete C1.5) | Date: 29/06/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 28 Days Compressive Strength
Date of Test	29/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.82	715	31.8	31.63
2	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.67	708.45	31.5	
3	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	9.03	711.8	31.6	

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Name of Work : Comprehensive Development works in ward No. 03 Attur

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Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 7 Days Compressive Strength
Date of Test	08/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.57	458	20.4	20.36
2	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.35	455.77	20.3	
3	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.69	460.56	20.5	

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Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 7 Days Compressive Strength
Date of Test	08/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.57	458	20.4	20.36
2	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.35	455.77	20.3	
3	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.69	460.56	20.5	

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Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 28 Days Compressive Strength
Date of Test	29/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.8	718	31.9	31.77
2	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.65	711.45	31.6	
3	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	9.01	714.8	31.8	

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Source of Sample	Sample supplied by Agency
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Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 7 Days Compressive Strength
Date of Test	08/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.52	450	20.0	20.00
2	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.3	447.77	19.9	
3	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.64	452.56	20.1	

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Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 28 Days Compressive Strength
Date of Test	29/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.8	718	31.9	31.77
2	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.65	711.45	31.6	
3	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	9.01	714.8	31.8	

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Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 7 Days Compressive Strength
Date of Test	08/06/2020

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1	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.62	458	20.4	20.36
2	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.4	455.77	20.3	
3	C.C Road	M30	02/06/2020	08/06/2020	150x150x150	22500	8.74	460.56	20.5	

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consultant	Aartn Associates
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Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Date of Reciept	02/06/2020
Sample Type	C.C Road Top Layer
Sample Type/Size	150x150x150 mm
Sample Grade/ Age	M30/ 28 Days Compressive Strength
Date of Test	29/06/2020

Sl No.	Identification Mark	Grade of Concrete	Date of Casting	Date of Trsting	Dimension of Specification	Cross sectional area	Weight of the sample	Failure Load	Compressive Strength	Average Compressive Strength
					mm	Sq.mm	kg	KN	N/mm^2	N/mm^2
1	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.75	713	31.7	31.54
2	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.6	706.45	31.4	
3	C.C Road	M30	02/06/2020	29/06/2020	150x150x150	22500	8.96	709.8	31.5	

Remarks :

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Test Report of Physical Properties of Cement-53 Grade

IS: 12269-2013, IS: 4031(Part-1,2,3,4,5,6,11)-1988	Date:	10-05-2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Birla Super 53-Grade
Date of Test	10-05-2020
Environmental Condition during test	Temperature: 26°C
	Humidity: 72%

Test Results

Sl. No	Physical Properties	Result	Requirements as per IS: 12269-2013
1	Finess by dry sieving (%)	1.95	-
2	Finess by Air permiability method (m^2/kg, Min)	285.4	225 m2
3	Density, (gm/cm)	3.12	-
4	Standard Consistency (%)	29.50%	Not Specified
5	Initial Setting time	145 Minutes	Not less than 30 minutes
6	Final Setting Time	240 Minutes	Not more than 15 minutes
7	Soudness (Le Chateliers Method)	1.5 mm	Not more than 10 mm

Remarks :

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Test Report of Physical Properties of Cement-53 Grade

IS: 12269-2013, IS: 4031(Part-4,6)-1988	Date:	06/05/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Birla Super 53-Grade
Date of Test	06/05/2020
Environmental Condition during test	Temperature: 26°C
	Humidity: 72%

Compressive Strength

Sl. No	Physical Properties	Result	Requirements as per IS: 12269-2013
1	3 Days	28.5 N/mm^2	Not less than 27 N/mm2
2	7 Days	39.0 N/mm^2	Not less than 37 N/mm2
3	28 Days	58.5 N/mm^2	Not less than 53 N/mm2

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)	Date:	06/05/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	06/05/2020
Total wt of the sample (gms):	1000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016			
					Grading Zone-1	Grading Zone-2	Grading Zone-3	Grading Zone-4
10	0	0	0.0	100	100	100	100	100
4.75	27	27	2.7	97.3	90-100	90-100	90-100	95-100
2.36	55	82	8.2	91.8	60-95	75-100	85-100	95-100
1.18	239	321	32.1	67.9	30-70	55-90	75-100	90100
600	205	526	52.6	47.4	15-34	35-59	60-79	80-100
300	203	729	72.9	27.1	5-20	8-30	12-40	15-50
150	191	920	92.0	8.0	0-10	0-10	0-10	0-15
PAN	80	1000	100.0	0.0	-	-	-	-

Result: The Tested Sample Conforms to Grading Zone-II

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed 2012)	Date:	06/05/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	06/05/2020

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Water Absorption (%)	1.50	-
2	Specific Gravity	2.59	-
3	Material Finer tha 75 micron (%)	6.90	Uncrushed fine Aggregate Max 3% Crushed Fine Aggregate Max 15% Mixed Fine Aggregate Max 12% Manufacture Fine Aggregate Max 10%

Remarks :

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Test Report of Coarse Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)	Date:	06/05/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	06/05/2020

Sieve Analysis (Particle Size Distribution) of 20mm Down Coarse Aggregate

Total wt of the sample (gms):	5000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
40	0	0	0.0	100	100
20	245	245	4.9	95.1	90-100
10	2560	2805	56.1	43.9	20-55
4.75	2033	4838	96.8	3.2	0-10
PAN	162	5000	100.0	0.0	-

Remarks :

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IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)	Date:	06/05/2020

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Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	06/05/2020

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Flakines Index (%)	13.20	Combined Flakiness and Elongation Index ahall-nor exceed 40% for uncrushed and crushed aggregate
2	Elongation Index (%)	12.6	
3	Specific Gravity	2.66	-
4	Bulk Density (Loose) (Kg/l)	1.54	-
5	Bulk Density (Composed) (Kg/l)	1.58	-
6	Water Absorption (%)	0.22	-
7	Aggregate Crushing Value (%)	24.50	Max 30% for Aggregates to be used in concrete for wearing surfaces, In case aggregate Crushing Value exceeds 30% then the test for 10% fines should be conducted for aggregate to be used in concrete oter tha for wearing surfaces
8	Aggregate Impact Value (%)	22.80	Max 30% for aggregate to be used in concrete for wearing surfaces, 45% for aggregate to be used in concrete other than for wearing surface.

Remarks :

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Test Report of Coarse Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)	Date:	06/05/2020

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Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	06/05/2020

Sieve Analysis (Particle Size Distribution) of 40mm Down Coarse Aggregate

Total wt of the sample (gms):			15000		
IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
80	0	0	0	100	100
40	244	244	1.6	98.4	90-100
20	5432	5676	37.8	62.2	30-70
10	4332	10008	66.7	33.3	10-35
4.75	4654	14662	97.7	2.3	0-5
PAN	338	15000	100.0	0.0	-

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Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)	Date:	06/05/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	06/05/2020

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Flakines Index (%)	12.40	Combined Flakiness and Elongation Index ahall nor exceed 40% for uncrushed and crushed aggregate
2	Elongation Index (%)	11.8	
3	Specific Gravity	2.68	-
4	Bulk Density (Loose) (Kg/l)	1.48	-
5	Bulk Density (Composed) (Kg/l)	1.52	-
6	Water Absorption (%)	0.22	-

Remarks :

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Test Report of Aggregate Impact Value

IS: 2386 Part-IV | Date: 13/03/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	13/03/2020

Sl. No	Particulars of Observations	Index	Test-1	Test-2
1	Total weight of the surface dry sample (passing 12.5mm and retained on 10mm sieve)	A	300.1	300.5
2	Weight of fraction passing 2.36 mm sieve after giving 15 blows	B	73.9	74
3	Weight of fraction passing 2.36 mm sieve after giving 15 blows	C	225.9	225.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made	A-(B+C)	0.3	0.6
5	Aggregate impact value	(B/A)x100	24.63	24.63
6	Aggregate impact value (Mean of two tests)	Percentage	24.63	

Remarks :

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Test Reults of Gradation for GSB (Granular Sub Base)

MORT&H (Section 400, Table 400-1) | Date: 13/03/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)-Grading V
Date of Test	13/03/2020
Total wt of the sample (gms):	11000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per MORTH (Table 400-1)	Remarks
75	0	0	0.0	100	100	Satisfactory
53	315	315	2.9	97.1	80-100	Satisfactory
26.5	2259	2574	23.4	76.6	55-90	Satisfactory
9.5	2179	4753	43.2	56.8	35-65	Satisfactory
4.75	2251	7004	63.7	36.3	25-50	Satisfactory
2.36	1820	8824	80.2	19.8	10-20	Satisfactory
0.85	1212	10036	91.2	8.8	2-10	Satisfactory
0.425	911	10947	99.5	0.5	0-5	Satisfactory

Remarks: Satisfactory

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Test Reults of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29 — Date: 13/03/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Consultant	Aartn Associates
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	13/03/2020

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2412.3	2398.6
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5282.2	5298.5
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1502.4	1486.1
5	Volume of sand in hole (V = W5/Ysand)	1076.99	1065.30
6	Bulk density (gm/cc) (Yb= W2/v)	2.240	2.252
7	Moisture meter reading (%)	5.30	5.10
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.143	2.144
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	**98.32**	**98.36**
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	**98.34**	

Remarks:Found to be Satisfactory.

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